International EESS Wideband Downlink Workshop

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Defense Satellite Communications System (DSCS)

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Overview

- System Overview
- DSCS Channels
- Earth-Station Terminals
  - Large
  - Medium
  - Small
- Terminals Employing Spread Spectrum
- Summary

System Overview

- DSCS
  - Provides a worldwide, responsive Super High Frequency (SHF) wideband and anti-jam satellite communications capability in support of critical national, strategic, and Tactical C3I requirements
  - System consists of: a space segment, a control segment, and a terminal segment
  - Terminal Segments
    - Strategic
    - Tactical

DSCS Channels

Channel Number	Uplink Frequency Bands (MHZ)	
	DSCS III A1-B7	DSCS III B8-B14
1	7975-8035	7975-8025
2	8060-8120	8040-8115
3	8145-8230	8130-8215
4	8255-8315	8230-8315
5	8340-8400	8340-8400
6	7900-7950	7900-7950

DSCS EARTH-STATION TERMINALS

LARGE TERMINAL TRANSMITTER CHARACTERISTICS

NOMENCLATURE:	AN/FSC-78
DEPLOYMENT:	WORLDWIDE
FUNCTION:	STRATEGIC/TACTICAL GATEWAY
UPLINK FREQUENCY BAND:	7900-8400 MHZ
MODULATION TYPES:	BPSK & OQPSK
MODULATION TECHNIQUE:	FDMA
MODES OF OPERATION:	DATA & VOICE (DIGITAL)
EMISSION BANDWIDTH:	6 MHZ
BASEBAND DATA RATE:	2 X T1
POWER LEVEL:	32 DBM
ANTENNA SIZE/TYPE:	60-FOOT PARABOLIC REFLECTOR
ANTENNA GAIN:	61 DBI

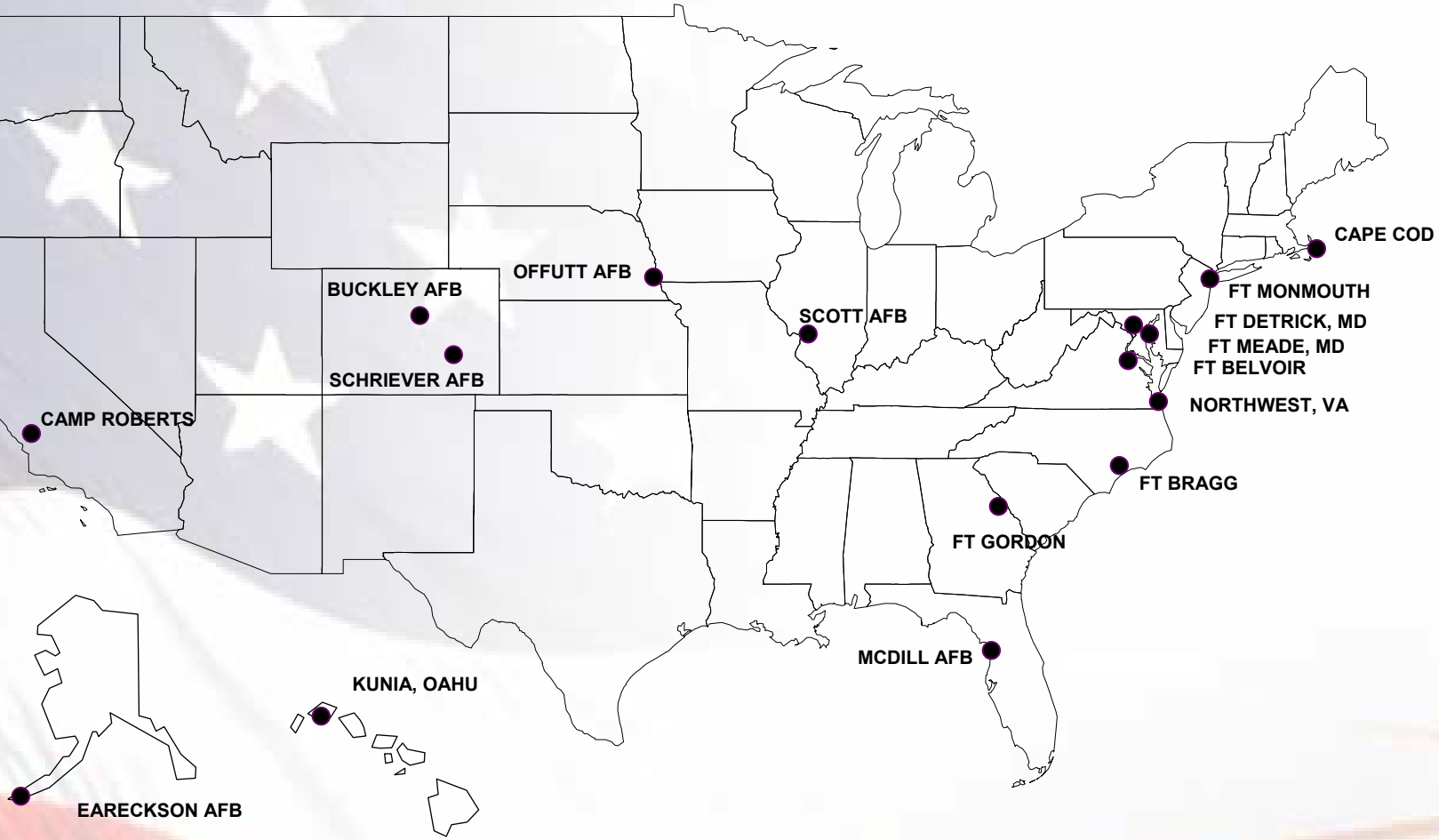
LARGE DSCS EARTH-STATION TERMINAL LOCATIONS IN THE US

DSCS EARTH-STATION TERMINALS

MEDIUM TERMINAL TRANSMITTER CHARACTERISTICS

NOMENCLATURE:	AN/GSC-39 AN/GSC-52 AN/MSC-73
DEPLOYMENT:	WORLDWIDE
FUNCTION:	STRATEGIC/TACTICAL GATEWAY
UPLINK FREQUENCY BAND:	7900-8400 MHZ
MODULATION TYPES:	BPSK & OQPSK
MODULATION TECHNIQUE:	FDMA
MODES OF OPERATION:	DATA & VOICE (DIGITAL)
EMISSION BANDWIDTH:	6 MHZ
BASEBAND DATA RATE:	2 X T1
POWER LEVEL:	33 DBM
ANTENNA SIZE/TYPE:	38-FOOT PARABOLIC REFLECTOR
ANTENNA GAIN:	57 DBI

MEDIUM DSCS EARTH-STATION TERMINAL LOCATIONS IN THE US

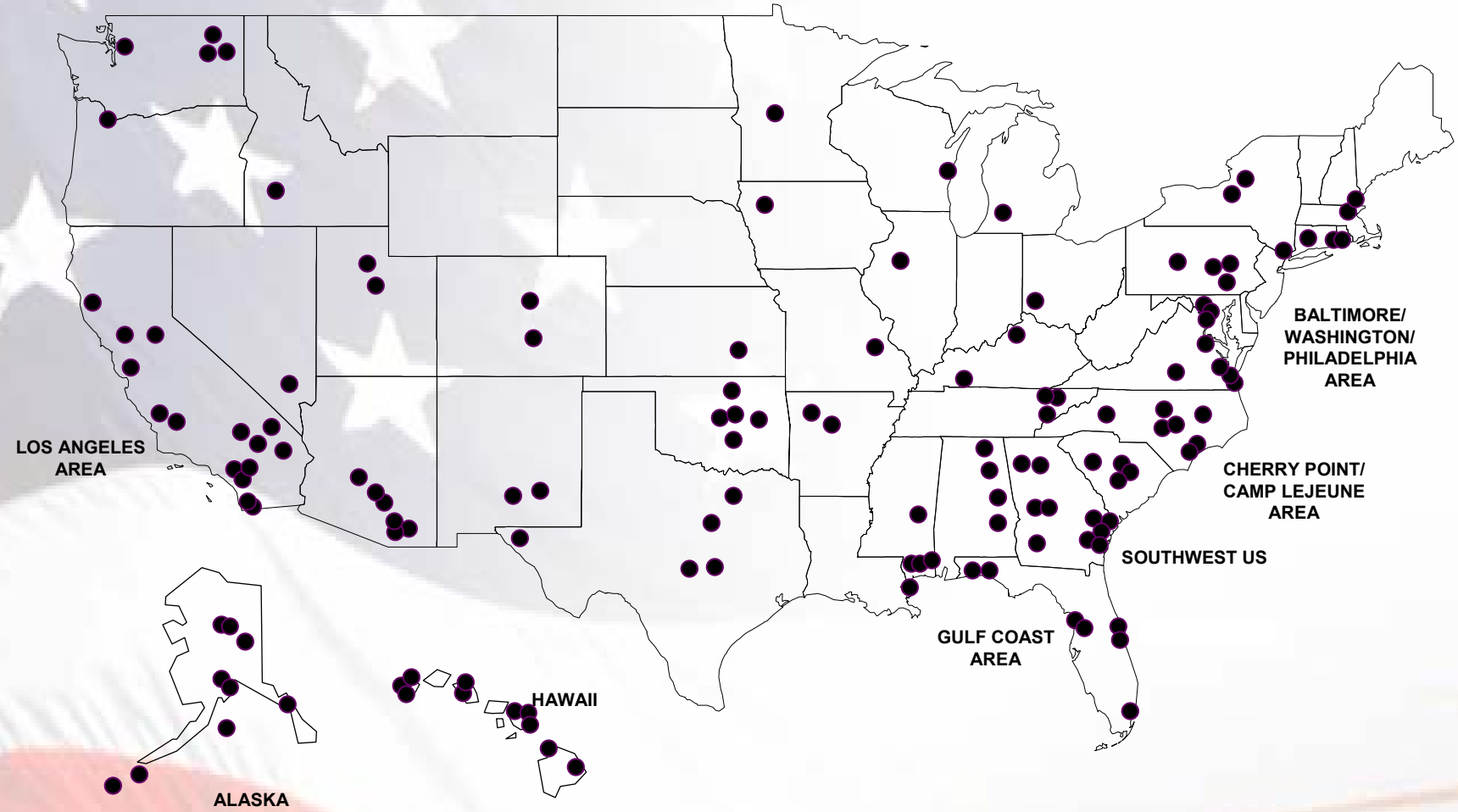


DSCS EARTH-STATION TERMINALS

SMALL TERMINAL TRANSMITTER CHARACTERISTICS

NOMENCLATURE:	AN/TSC-85B,-85C, -86,-93A&B&C,-94B, -100A
DEPLOYMENT:	WORLDWIDE
FUNCTION:	STRATEGIC OR TACTICAL
UPLINK FREQUENCY BAND:	7900-8400 MHZ
MODULATION TYPES:	BPSK & OQPSK
MODULATION TECHNIQUE:	FDMA
MODES OF OPERATION:	DATA & VOICE (DIGITAL)
EMISSION BANDWIDTHS:	25 KHZ – 9.8 MHZ
BASEBAND DATA RATE:	2 X T1
POWER LEVEL:	47 DBM FOR 8-FOOT TERMINAL 37 DBM FOR 20-FOOT TERMINAL
ANTENNA SIZE/TYPE:	8 OR 20 FOOT DISH
ANTENNA GAIN:	44 OR 52 DBI

SMALL DSCS EARTH-STATION TERMINAL LOCATIONS IN THE US

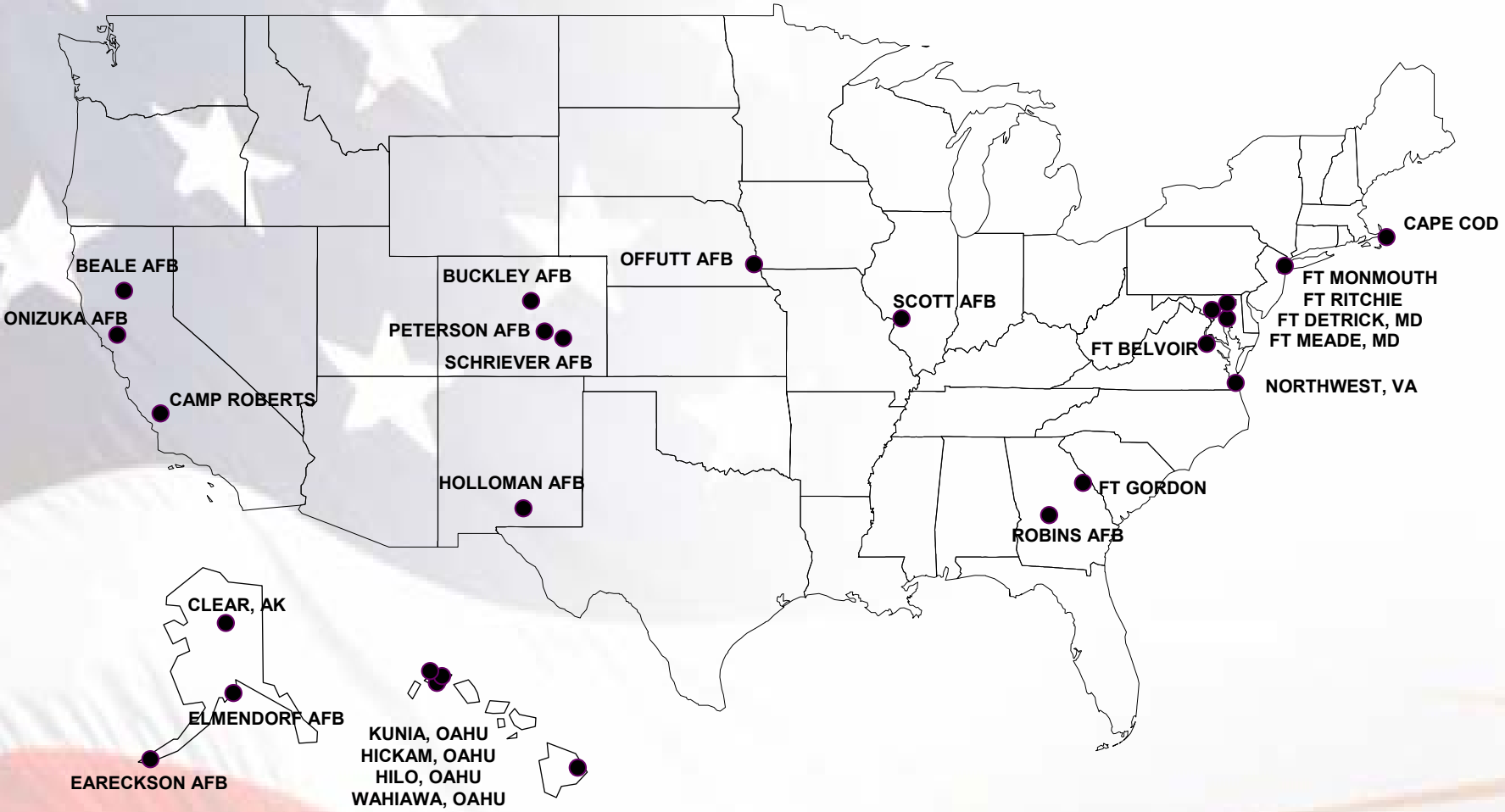


DSCS Terminals Employing Spread Spectrum Modulation

GENERAL TRANSMITTER CHARACTERISTICS

NOMENCLATURE:	AN/FSC-78
	AN/GSC-52
	AN/GSC-49
	AN/GSC-39
DEPLOYMENT:	FIXED SITES IN THE US
UPLINK FREQUENCY BAND:	8002.7/8013.0 MHZ
MODULATION TYPES:	BPSK & OQPSK
MODULATION TECHNIQUE:	CDMA
EMISSION BANDWIDTHS:	40 MHZ
	(40-MCHIP CODE RATE)
BASEBAND DATA RATE:	2 X T1
POWER LEVEL:	53 DBM (20-FOOT TERMINAL)

DSCS EARTH-STATION TERMINALS IN THE US WHICH EMPLOY SPREAD SPECTRUM MODULATION



SUMMARY

- DSCS Operates In The 8025-8400 MHZ Band
- Potential For EMI To Earth-Exploration Satellite Terminals
- EMI Analyses Required To Identify Areas Of Compatible Operation
- Coordination With Government Agencies Through The FCC Recommended Prior To Terminal Installation
- DSCS: Road Ahead